UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/320,643	05/27/99	PIVA M	Q-54188

MMC2/1004
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EXAMINER	
LEE, D	
ART UNIT	**PAPER NUMBER**
2876	4

DATE MAILED: 10/04/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/320,643	Applicant(s) PIVA et al.
	Examiner Diane Lee	Group Art Unit 2876

☒ Responsive to communication(s) filed on *May 27, 1999*.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-35* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-10, 13-22, and 24-30* is/are rejected.

☒ Claim(s) *11, 12, 23, and 31-35* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on *May 27, 1999* is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *2*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. Claims 1-35 are presented for examination.

2. Receipt is acknowledged of the Preliminary Amendment filed 27 May 1999.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the outward and inward light source disposed in an offset position from the optical axis (Z) of the object lenses by an angles represented as α and β, respectively, as cited in claims 3, 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

5. The abstract of the disclosure is objected to because of its minor informalities:

(a) Line 3: "comprises" should be changed --having--;

(b) Lines 4-5: "comprises means" should be changed --includes device--;

(c) Line 6: "detection means" should be changed --detection device--;

(d) Line 9: "detection means" should be changed to --detection device--;

(e) Line 12: "detection means"(first occurrence) should be changed to --detection device--;

(f) Line 12: "means comprises" should be changed to --device having--;

(g) Lines 14-15: "The apparatus is characterized in that" should be changed to --Wherein--;

(h) Lines 15-16: "means comprises" should be changed to --device has--; and

(I) Line 21: "(Fig. 1)" should be deleted.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 5-6, 8, 10, 13-15, and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilt et al. [US 5,737,122-referred as Wilt].

Re claims 1, 5-6, and 24: Wilt discloses an illumination system for an optical code reading apparatus (see the abstract and col. 1, lines 54+), comprising:

a casing 100 (see figures 4-6);

a reading window open into the casing (see figure 5);

an illuminating means 118, 120 housed within the casing and arranged to act on an optical code to be read through the reading window (see figure 5);

a detection means 76 responsive to light scatter from the light illuminated optical code into the casing through the reading window (see figures 4-9);

an objective lens 78, 104 having an optical axis, the objective lens being housed within the casing between the reading window and the detection means and being located to pick up light scattered from the illuminated optical code 110 and project the picked-up light onto the detection means. Wherein the detection means comprises a plurality of light-sensitive elements capable of converting the light to electric signals representing the light image, e.g., 6.6 x 8.8 mm charge coupled device (CCD sensor) (see col. 6, lines 24+ and figures 4-6);

wherein the illumination means comprises a first array of light source 118 which are active in a first illumination configuration and at least a second array of light sources 120 which are active in at least a second illumination configuration different from the first (see col. 7, lines 52+ and figures 5-6).

Re claim 2: Wilt teaches the first array of light sources comprises a plurality of light source pairs and with combined figures 5-6, Wilt shows that each pair in turn comprising responsive light sources symmetrically arranged with respective light sources symmetrically arranged with respect to the optical axis of the objective lens and aligned along a substantially

perpendicular direction to the optical axis. The light sources lying in a first emission lay intersecting the optical axis and the light sensitive elements of the detection means.

Re claims 8 and 10: from figures 4-5, Wilt shows that the light system having baffles (94, 96, 132, 134), the housing of the LED, mirrors, and a window combined together as a means to prevent the dispersion of the light beam thereby confining the light beam from the first array of light sources within a predetermined reading area. The casing/housing of the LED being a holder element for the plurality of light source pairs which formed with a respective seat for the light sources and seats having respective sidewalls shaped to confine the light beam from each source within the predetermined reading area.

Re claims 13 and 25: Wilt teaches that the first array of light source for reading soft mark and the second array of light source which is a broad spectrum incandescent lamps for reading hard marks thereby the plurality of second light sources have a lower light intensity than the sources in the first array of light sources (see col. 6, liens 46+).

Re claims 14-15: Wilt shows the second light sources are housed within the casing symmetrically with respect to the optical axis of the objective lens (see figure 6) so as to be aligned to one another in a second emission lay which is different from the first one. Wherein the second light sources are housed within the casing centrally with respect to the first array of light sources and wherein the second emission lay is lower than the first emission lay, i.e., with respect to the lower portion of the light illumination as shown in figure 6.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 9, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilt. The teachings of Wilt have been discussed above.

Re claim 9: Although Wilt teaches the light source is provided with a mask 54, 84 for confining the light beam having the first array of light sources having a rectangular shaped masking element associated with the casing at the location of the reading window, he does not teach the mask having a ring shaped.

However it would have been obvious design variation to an artisan of ordinary skill in the art at the time the invention was made to utilized the different shape of mask (e.g., rectangular, circular or ring) in the reading device of Wilt in order to accommodate the types of code/image being read and its illumination requirement and thereby obtain best reading results. Furthermore, due to the fact that the variety shape of masks are readily available, choosing the best shape mask in the reader to accommodate the type of optic device, the reading window, visibility of reading substrate, and the sensitivity of the optic sensor would have been an obvious expedient.

Re claims 16 and 26: Although Wilt teaches the first array of light sources having a two pairs discrete plastics LEDs and the first and second array of light sources each having different intensity, he does not teach the specifics of the second array of light sources having four SMD plastics LEDs.

However it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to modify type of the light source by utilizing different type of light source in the reader of Wilt in order to accommodate illumination requirements with given optic components therein. Therefore, implementing four SMD plastics LEDs or any other types in the second array of light sources would have been an obvious extension taught by Wilt and would have been an obvious design variation. Accordingly, it would have been an obvious expedient.

9. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilt in view of Roustaei [US 5,532,467]. The teachings of Wilt have been discussed above.

Wilt does not disclose the light source includes a pair of outward sources and inward sources each disposed in an offset position from the optical axis with a specific angle, α and β, respectively such that the angle β is smaller than angle α.

Roustaei discloses an optic scanning head having plurality pair illumination being oriented to emit light at different angles such that the outward pair of light sources having an offset position from the optic axis with an outward angle (the optic axis defined by optic module 17) and the inward pair of light sources having an offset position from the optic axis with an inward angle thereby the outward angle is smaller than the inward angle (see figure 1).

In view of Roustaei's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the LED arrangement configuration (i.e., each pair of light emitting at different angles) in the teaching of Wilt in order to create an illumination having a fan of light which illuminating the light symmetrically for better reading results.

10. Claims 7, 18-22, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilt in view of Wang et al. [US 5,521,366]. The teachings of Wilt have been discussed above.

Re claim 7: Although Wilt teaches the CCD sensor as a detection means therein, he is silent with respect to the specifics of the detection means being a CMOS sensor.

Wang discloses a dataform reader having a casing, an illuminating means 50, 52, a two dimensional array of sensor cells 20 as a detection means, and objective lens 56. Wang discloses the arrangement of the two dimensional array sensor cells which associated with a gain control, focus sensing and exposure control circuitry all integrated into a single chip such as CMOS chip to provide a lower power requirement in the reader (see the abstract and col. 5, lines 38+).

In view of Wang's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the CMOS technology (i.e., incorporating the two dimensional array sensor cells which with a gain control, focus sensing and exposure control circuitry implemented on a single chip) in the optical code reading device of Wilt in order to provide a lower power consumption in the optical reading device and for the advantage of light weight, cost advantages, and establishing the production techniques (i.e., in a single chip size).

Re claims 17-22, 27, and 30: Although Wilt teaches the illumination system for an optical code reading, i.e., for Optical Character Recognition (OCR) of indicia on a substrate which obviously includes a decoding means and wherein the CCD sensor detects the light intensity of the light scattered form the optical code, he is silent with respect to the process of comparing the outline of the intensity with a reference outlined to activate the light source according to the result of the decoding attempt including the distance measured.

Wang discloses the CPU 88 as a means for decoding the optical code (see col. 9, lines 62+ and figures 5-6). The result of decoding attempts (i.e., upon a successful/unsuccessful decoding

operation, adjusting the reading distance between the reader and the target), the exposure illumination is turned on. From figures 2 and 5, Wang shows the decoding means coupled to an exposure control device (64, 64a) and a gain control device (60, 60a) to provide start and stop signals usable for beginning and terminating as exposure period. Therefore, the exposure control device monitors the sample image data and when the sample image data indicates that the level of reflected light from the target area has reached a predetermined level, the exposure control device generates a stop signal. Wang further shows the decoding means is also coupled to gain control device (60, 60a) and the focus device (62, 62a) to select an appropriate amplitude gain and offset signal to apply to the sensor array amplifier in the sensor which obviously includes the means for comparing the intensity with a reference intensity and the means to varying the amplification level of the electric signals generated by the detection means.

Re claims 28-29: with specifics of operation process, see col. 8, lines 59+ and figure 6.

Allowable Subject Matter

11. Claims 11-12, 23, 31-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Wilt as modified by Wang does not teach or fairly suggest optical code reader having a device for widening the angle of the emitting beam along the direction of

alignment of the first array of light sources and narrowing the angle of the emitting beam along the perpendicular direction to the first emission lay, and a converting device having a main digitalizer and an auxiliary digitalizer and wherein the sensitivity of the auxiliary digitalizer is higher than the main digitalizer which is used to provide the specifics of the setting/switching mode having different configuration mode, as set forth in the claims

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Suda et al. [US 4,859,842] discloses an optical device for forming light distribution having a shaped mask therein and

Roustaei et al. [US 5,786,582] discloses an optical reading device with the light source disposed in an angle with respect to an optic axis.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diane Lee whose telephone number is (703) 306-3427. The examiner can normally be reached on Monday to Thursday and every other Friday (second Friday of the bi-week) from 6:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald T. Hajec, can be reached on (703) 308-4075. The fax phone number for this Group is (703) 308-7722.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**don.hajec@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

D. Lee
Art Unit 2876
September 29, 2000

Michael G Lee
Primary Examiner